

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-16. (previously canceled)

17. (currently amended) A barbed suture and for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein

the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and the barbs are in a twist cut multiple spiral disposition, wherein each successive barb is offset from the previous barb relative to the longitudinal axis of the body such that any plane perpendicular to the body and cutting transversely through the body and intersecting any portion of a barb will not intersect any portion of any other barb on the body, and

the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

18. (currently amended) A barbed suture and for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein

the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted

for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and the barbs are in a twist cut multiple spiral disposition, wherein each successive barb is offset from the previous barb relative to the longitudinal axis of the body such that any plane perpendicular to the body and cutting transversely through the body and intersecting any portion of a barb will not intersect any portion of any other barb on the body, and

the suture has a ~~spiraled~~ spirality angle α ranging from about 5 degrees to about 25 degrees, and

the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

19. (currently amended) The barbed suture and surgical needle combination according to claim 18, wherein the ~~spiraled~~ spirality angle α ranges from about 7 degrees to about 22 degrees.

20. (currently amended) The barbed suture and surgical needle combination according to claim 19, wherein the ~~spiraled~~ spirality angle α ranges from about 12 degrees to about 18 degrees.

21. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises comprising

a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and the barbs are in an overlapping disposition such that for at least two adjacent barbs, one being an overlapping barb and one being an overlapped barb, the overlapping barb has an underside and the overlapped barb has a topside where part of the underside of the overlapping barb is derived from part of the topside of the overlapped barb, and

the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

22. (withdrawn) The barbed suture and surgical needle combination according to claim 21, wherein each of the overlapping barb and the overlapped barb has a barb cut length, and the overlapping barb and the overlapped barb have a barb cut distance between them that is less than the barb cut length of the overlapped barb.

23. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, wherein the barbs have a configuration selected from the group consisting of (i) a barb cut angle θ ranging from about 140 degrees to about 175 degrees, (ii) a barb cut depth with a ratio of the barb cut depth to the suture diameter ranging from about 0.2 to about 0.6, (iii) a barb cut length with a ratio of the barb cut length to the suture diameter ranging from about 0.6 to about 2, (iv) a barb cut distance with a ratio of the barb cut distance to the suture diameter ranging from about 1 to about 6, (v) a corrugated barb underside, (vi) at least two sets of barbs with each set having a barb size different from the barb size of the other set, and (vii) combinations thereof, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

24. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the barb cut angle θ ranges from about 145 degrees to about 173 degrees.

25. (withdrawn) The barbed suture and surgical needle combination according to claim 24, wherein the barb cut angle θ ranges from about 150 degrees to about 170 degrees.

26. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the ratio of the barb cut depth to the suture diameter ranges from about 0.25 to about 0.55.

27. (withdrawn) The barbed suture and surgical needle combination according to claim 26, wherein the ratio of the barb cut depth to the suture diameter ranges from about 0.3 to about 0.5.

28. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the ratio of the barb cut length to the suture diameter ranges from about 0.8 to about 1.7.

29. (withdrawn) The barbed suture and surgical needle combination according to claim 28, wherein the ratio of the barb cut length to the suture diameter ranges from about 0.9 to about 1.5.

30. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the ratio of the barb cut distance to the suture diameter ranges from about 1.5 to about 4.5.

31. (withdrawn) The barbed suture and surgical needle combination according to claim 30, wherein the ratio of the barb cut distance to the suture diameter ranges from about 1.8 to about 3.5.

32 - 33. (previously canceled).

34. (presently canceled).

35. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end, a second end, and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in

which the barb faces, wherein the barbs are in an overlapping disposition such that for at least two adjacent barbs, one being an overlapping barb and one being an overlapped barb, the overlapping barb has an underside and the overlapped barb has a topside where part of the underside of the overlapping barb is derived from part of the topside of the overlapped barb, and wherein the surgical needle has a diameter with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

36. (previously canceled).

37. (withdrawn) A method for suturing tissue with a barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and wherein the surgical needle has a diameter at the needle's thickest part, said method comprising:

from various barbed suture and surgical needle combinations, selecting a barbed suture and surgical needle combination with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less and with the surgical needle of the selected combination having the thinnest diameter of the various surgical needles in combination with barbed sutures having a particular diameter;

suturing tissue with the selected combination;

and

providing better strength to the sutured tissue.

38. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 37, wherein the barbed suture and the surgical needle have an attachment selected from the group consisting of swaging, channel wrapping, heat shrinking, and eyelet threading.

39. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 37, wherein the surgical needle has a polymeric coating.

40. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 39, wherein the polymeric coating comprises a silicone material.

41. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 37, wherein the ratio of the surgical needle diameter to the barbed suture diameter is about 2:1 or less.

42. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 41, wherein the ratio of the surgical needle diameter to the barbed suture diameter is about 1:1 or less.

43. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 42, wherein the ratio of the surgical needle diameter to the barbed suture diameter is about 0.9:1 or less.

44. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 37, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

45. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 44, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

46. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 44, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

47. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 46, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

48. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 37, wherein the barbs have a disposition on the body selected from the group consisting of a staggered disposition, a twist cut multiple spiral disposition, an overlapping disposition, a random disposition, and combinations thereof.

49. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 48, wherein the barbs are in a staggered disposition, a twist cut multiple spiral disposition, an overlapping disposition, or a combination thereof, and the barbs are all facing in a direction toward only one of the first end and the second end.

50. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 48, wherein the barbs are in a staggered disposition, a twist cut multiple spiral disposition, an overlapping disposition, or a combination thereof, and the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

51. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 48, wherein the staggered disposition includes a first set of the barbs being radially spaced about 180 degrees from a second set of the barbs.

52. (withdrawn) The method of suturing with the barbed suture and surgical needle combination according to claim 48, wherein the staggered disposition includes a first set of the barbs being radially spaced about 120 degrees from a second set of the barbs and the second set of the barbs

being radially spaced about 120 degrees from a third set of the barbs.

53. (withdrawn) A method for suturing tissue with a barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end, a second end, and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, said method comprising:

from various barbed suture and surgical needle combinations, selecting a barbed suture and surgical needle combination wherein the barbed suture and the surgical needle have an attachment selected from the group consisting of swaging, channel wrapping, heat shrinking, and eyelet threading, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 2:1 or less and with the surgical needle of the selected combination having the thinnest diameter of the various surgical needles in combination with barbed sutures having a particular diameter;

suturing tissue with the selected combination;

and

providing better strength to the sutured tissue.

54. (withdrawn) A method for suturing tissue with a barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end, a second end, and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, said method comprising:

from various barbed suture and surgical needle combinations, selecting a barbed suture and surgical needle combination wherein the barbs are in a staggered disposition, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less and with the

surgical needle of the selected combination having the thinnest diameter of the various surgical needles in combination with barbed sutures having a particular diameter; suturing tissue with the selected combination;
and

providing better strength to the sutured tissue.

55. (previously presented) The barbed suture and surgical needle combination according to claim 17, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

56. (previously presented) The barbed suture and surgical needle combination according to claim 55, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

57. (previously presented) The barbed suture and surgical needle combination according to claim 55, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

58. (previously presented) The barbed suture and surgical needle combination according to claim 57, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

59. (previously presented) The barbed suture and surgical needle combination according to claim 17, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

60. (previously presented) The barbed suture and surgical needle combination according to claim 17, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end

and the barbs of the second portion are facing in a direction toward only the second end.

61. (previously presented) The barbed suture and surgical needle combination according to claim 18, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

62. (previously presented) The barbed suture and surgical needle combination according to claim 61, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

63. (previously presented) The barbed suture and surgical needle combination according to claim 61, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

64. (previously presented) The barbed suture and surgical needle combination according to claim 63, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

65. (previously presented) The barbed suture and surgical needle combination according to claim 18, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

66. (previously presented) The barbed suture and surgical needle combination according to claim 18, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

67. (withdrawn) The barbed suture and surgical needle combination according to claim 21, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

68. (withdrawn) The barbed suture and surgical needle combination according to claim 67, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

69. (withdrawn) The barbed suture and surgical needle combination according to claim 67, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

70. (withdrawn) The barbed suture and surgical needle combination according to claim 69, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

71. (withdrawn) The barbed suture and surgical needle combination according to claim 21, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

72. (withdrawn) The barbed suture and surgical needle combination according to claim 21, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

73. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

74. (withdrawn) The barbed suture and surgical needle combination according to claim 73, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

75. (withdrawn) The barbed suture and surgical needle combination according to claim 73, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

76. (withdrawn) The barbed suture and surgical needle combination according to claim 75, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

77. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

78. (withdrawn) The barbed suture and surgical needle combination according to claim 23, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

79 - 84. (presently canceled).

85. (withdrawn) The barbed suture and surgical needle combination according to claim 35, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

86. (withdrawn) The barbed suture and surgical needle combination according to claim 85, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

87. (withdrawn) The barbed suture and surgical needle combination according to claim 85, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

88. (withdrawn) The barbed suture and surgical needle combination according to claim 87, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

89. (withdrawn) The barbed suture and surgical needle combination according to claim 35, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

90. (withdrawn) The barbed suture and surgical needle combination according to claim 35, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

91. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the barbs having a barb cut angle θ ranging from about 140 degrees to about 175, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

92. (withdrawn) The barbed suture and surgical needle combination according to claim 91, wherein the barb cut angle θ ranges from about 145 degrees to about 173 degrees.

93. (withdrawn) The barbed suture and surgical needle combination according to claim 92, wherein the barb cut angle θ ranges from about 150 degrees to about 170 degrees.

94. (withdrawn) The barbed suture and surgical needle combination according to claim 91,

wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

95. (withdrawn) The barbed suture and surgical needle combination according to claim 94, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

96. (withdrawn) The barbed suture and surgical needle combination according to claim 94, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

97. (withdrawn) The barbed suture and surgical needle combination according to claim 96, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

98. (withdrawn) The barbed suture and surgical needle combination according to claim 91, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

99. (withdrawn) The barbed suture and surgical needle combination according to claim 91, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

100. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the barbs having a barb cut depth with a ratio of the barb cut depth to the

suture diameter ranging from about 0.2 to about 0.6, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

101. (withdrawn) The barbed suture and surgical needle combination according to claim 100, wherein the ratio of the barb cut depth to the suture diameter ranges from about 0.25 to about 0.55.

102. (withdrawn) The barbed suture and surgical needle combination according to claim 101, wherein the ratio of the barb cut depth to the suture diameter ranges from about 0.3 to about 0.5.

103. (withdrawn) The barbed suture and surgical needle combination according to claim 100, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

104. (withdrawn) The barbed suture and surgical needle combination according to claim 103, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

105. (withdrawn) The barbed suture and surgical needle combination according to claim 103, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

106. (withdrawn) The barbed suture and surgical needle combination according to claim 105, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

107. (withdrawn) The barbed suture and surgical needle combination according to claim 100, wherein the barbs are all facing in a direction toward only one of the first end and the second

end.

108. (withdrawn) The barbed suture and surgical needle combination according to claim 100, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

109. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the barbs having a barb cut length with a ratio of the barb cut length to the suture diameter ranging from about 0.6 to about 2, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

110. (withdrawn) The barbed suture and surgical needle combination according to claim 109, wherein the ratio of the barb cut length to the suture diameter ranges from about 0.8 to about 1.7.

111. (withdrawn) The barbed suture and surgical needle combination according to claim 110, wherein the ratio of the barb cut length to the suture diameter ranges from about 0.9 to about 1.5.

112. (withdrawn) The barbed suture and surgical needle combination according to claim 109, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

113. (withdrawn) The barbed suture and surgical needle combination according to claim 112, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

114. (withdrawn) The barbed suture and surgical needle combination according to claim 112, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

115. (withdrawn) The barbed suture and surgical needle combination according to claim 114, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

116. (withdrawn) The barbed suture and surgical needle combination according to claim 109, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

117. (withdrawn) The barbed suture and surgical needle combination according to claim 109, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

118. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the barbs having a barb cut distance with a ratio of the barb cut distance to the suture diameter ranging from about 1 to about 6, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

119. (withdrawn) The barbed suture and surgical needle combination according to claim 118, wherein the ratio of the barb cut distance to the suture diameter ranges from about 1.5 to about

4.5.

120. (withdrawn) The barbed suture and surgical needle combination according to claim 119, wherein the ratio of the barb cut distance to the suture diameter ranges from about 1.8 to about 3.5.

121. (withdrawn) The barbed suture and surgical needle combination according to claim 118, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

122. (withdrawn) The barbed suture and surgical needle combination according to claim 121, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

123. (withdrawn) The barbed suture and surgical needle combination according to claim 121, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

124. (withdrawn) The barbed suture and surgical needle combination according to claim 123, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

125. (withdrawn) The barbed suture and surgical needle combination according to claim 118, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

126. (withdrawn) The barbed suture and surgical needle combination according to claim 118, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

127. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the barbs having a corrugated barb underside, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

128. (withdrawn) The barbed suture and surgical needle combination according to claim 127, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

129. (withdrawn) The barbed suture and surgical needle combination according to claim 128, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

130. (withdrawn) The barbed suture and surgical needle combination according to claim 128, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

131. (withdrawn) The barbed suture and surgical needle combination according to claim 130, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

132. (withdrawn) The barbed suture and surgical needle combination according to claim 127, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

133. (withdrawn) The barbed suture and surgical needle combination according to claim 127, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

134. (withdrawn) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, at least two sets of barbs with each set having a barb size different from the barb size of the other set, and wherein the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter of about 3:1 or less.

135. (withdrawn) The barbed suture and surgical needle combination according to claim 134, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

136. (withdrawn) The barbed suture and surgical needle combination according to claim 135, wherein the bio-absorbable material is selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

137. (withdrawn) The barbed suture and surgical needle combination according to claim 135, wherein the non-absorbable material is selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

138. (withdrawn) The barbed suture and surgical needle combination according to claim 137, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

139. (withdrawn) The barbed suture and surgical needle combination according to claim 134, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

140. (withdrawn) The barbed suture and surgical needle combination according to claim 134, wherein the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

141. (currently amended) A barbed suture and for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein

the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and the barbs are in a twist cut multiple spiral disposition, wherein each successive barb is offset from the previous barb relative to the longitudinal axis of the body such that any plane perpendicular to the body and cutting transversely through the body and intersecting any portion of a barb will not intersect any portion of any other barb on the body, and

the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter ranging from about 3:1 to about 1.47:1.

142. (currently amended) A barbed suture and for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein

the suture comprises a plurality of barbs projecting from an elongated body having a first end and a second end and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, and the barbs are in a twist cut multiple spiral disposition, wherein each successive barb is offset from the previous barb relative to the longitudinal axis of the body such that any plane perpendicular to the body and cutting transversely through the body and intersecting any portion of a barb will not intersect any portion of any other barb on the body, and the suture has a ~~spiraled~~ spirality angle α ranging from about 5 degrees to about 25 degrees, and

the surgical needle has a diameter at the needle's thickest part with a ratio of the surgical needle diameter to the barbed suture diameter ranging from about 3:1 to about 1.47:1.

143. (currently amended) A barbed suture for connecting human or animal tissue in combination with a surgical needle, said combination comprising a barbed suture attached to a surgical needle, wherein the suture comprises a plurality of barbs projecting from an elongated body having a first end, a second end, and a diameter, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, wherein the barbs are in a twist cut multiple spiral disposition, wherein each successive barb is offset from the previous barb relative to the longitudinal axis of the body such that any plane perpendicular to the body and cutting transversely through the body and intersecting any portion of a barb will not intersect any portion of any other barb on the body, and the suture has a ~~spiraled~~ spirality angle α ranging from about 5 degrees to about 25 degrees, and wherein the surgical needle has a diameter with a ratio of the surgical needle diameter to the barbed suture diameter ranging from about 3:1 to about 1.47:1.

144. (previously presented) The barbed suture and surgical needle combination according to claim 17, wherein the elongated body has a circular cross section.

145. (previously presented) The barbed suture and surgical needle combination according to claim 17, wherein the elongated body has a non-circular cross section.

146. (currently amended) The barbed suture and surgical needle combination according to claim 145, wherein the non-circular cross section has a shape selected from the group consisting of oval, triangle, square, ~~parallepiped~~ parallelogram, trapezoid, rhomboid, pentagon, hexagon, cruciform, and combinations thereof.

147. (previously presented) The barbed suture and surgical needle combination according to claim 18, wherein the elongated body has a circular cross section.

148. (previously presented) The barbed suture and surgical needle combination according to claim 18, wherein the elongated body has a non-circular cross section.

149. (currently amended) The barbed suture and surgical needle combination according to claim 148, wherein the non-circular cross section has a shape selected from the group consisting of oval, triangle, square, ~~parallepiped~~ parallelogram, trapezoid, rhomboid, pentagon, hexagon, cruciform, and combinations thereof.

150. (currently amended) The barbed suture and surgical needle combination according to claim 34 141, wherein the elongated body has a circular cross section.

151. (currently amended) The barbed suture and surgical needle combination according to claim 34 141, wherein the elongated body has a non-circular cross section.

152. (currently amended) The barbed suture and surgical needle combination according to claim 151, wherein the non-circular cross section has a shape selected from the group consisting of oval, triangle, square, ~~parallepiped~~ parallelogram, trapezoid, rhomboid, pentagon, hexagon, cruciform, and combinations thereof.